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PPG Industries Inc. v. Guardian Industries Corp. (CA FC) 37 USPQ2d 1618 (2/6/1996)

PPG Industries Inc. v. Guardian Industries Corp.

U.S. Court of Appeals Federal Circuit
37 USPQ2d 1618

Decided February 6, 1996
No. 95-1222

Headnotes

PATENTS

1. Infringement -- Literal infringement (§ 120.05)

Defendant's automotive glass infringes claims of patent for solar control glass, since accused glass satisfies all limitations of asserted independent and dependent claims, including level of ultraviolet transmittance no greater than 31 percent; inventors' miscalculation of ultraviolet transmittance level of claimed glass due to software error does not warrant contrary conclusion, even though ultraviolet transmittance of accused glass would appear to be above 31 percent if tested with inventors' inaccurate equipment, since asserted claims cover glass that transmits no more than 31 percent of sun's ultraviolet radiation, rather than glass that is measured at no more than 31 percent ultraviolet transmittance using flawed testing system.

2. Patentability/Validity -- Specification -- Claim adequacy (§ 115.1109)

Claims for solar control glass are not invalid for indefiniteness under 35 USC 112, even though inventors miscalculated ultraviolet transmittance level of claimed glass due to software error, since claims are precise in quantifying essential ingredients and transmittance tolerances of claimed compositions and give clear notice of what compositions fall within their range, since inventors thus distinctly claimed subject matter that they regarded as their invention despite misconception as to ultraviolet transmittance levels, and since inventors' failure to specify method to be used in testing ultraviolet transmittance does not render claims invalid.

3. Patentability/Validity -- Specification -- Enablement (§ 115.1105)

Specification of patent for solar control glass satisfies enablement requirement of 35 USC 112, even though inventors' miscalculation of ultraviolet transmittance level of claimed glass could lead careful reader of specification to conclude that glass with iron content and "redox" ratio of accused glass would not be likely to satisfy ultraviolet transmittance limitation of asserted claims, since embodiment of patent having same

composition and transmittance properties as accused glass could be made by person of ordinary skill in art without "undue experimentation" in view of specification's provision of guidance in selecting operating parameters that would yield claimed result.

4. Patentability/Validity -- Anticipation -- Identity of elements (§ 115.0704)

Patentability/Validity -- Obviousness -- Relevant prior art -- Particular inventions (§ 115.0903.03)

Infringement plaintiff is likely to prevail on issues of whether patent for "solar control glass" is anticipated or rendered obvious by prior Russian patent, since composition of prior patent contains significant amounts of rare earth elements that absorb ultraviolet radiation and visible light, and thus does not meet limitations of claimed glass, and since defendant has not rebutted showing that Russian patent teaches away from compositions of asserted claims, and has thus failed to show that one skilled in art would have been motivated to eliminate additional rare earth elements and would have had reasonable expectation of success in light of prior art.

REMEDIES

5. Non-monetary and injunctive -- Equitable relief -- Preliminary injunctions -- Patents (§ 505.0707.07)

Patent infringement plaintiff's showing of likelihood of success on merits of infringement and validity issues warrants issuance of preliminary injunction, since plaintiff's showing on those issues is sufficiently strong to invoke presumption of irreparable harm, and since defendant has failed to rebut that presumption.

6. Non-monetary and injunctive -- Equitable relief -- Preliminary injunctions -- Patents (§ 505.0707.07)

Federal district court did not abuse its discretion by finding that both balance of hardships and public interest favor issuance of injunction in action for infringement of patent for solar control glass, since court has not been unresponsive to defendant's interest in meeting its current contract obligations, or to public's interest in obtaining solar control glass.

Particular patents -- Chemical -- Solar control glass

5,240,886, Gulotta and Shelestak, ultraviolet absorbing, green tinted glass, grant of preliminary injunction in infringement suit affirmed.

Case History and Disposition:

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Appeal from the U.S. District Court for the Western District of Pennsylvania, Lancaster, J.

Action by PPG Industries Inc. against Guardian Industries Corp. for patent infringement. From grant of plaintiff's motion for preliminary injunction, defendant appeals. Affirmed.

Attorneys:
Arland T. Stein, Stanley D. Ference III, and Cynthia E. Kernick, of Reed Smith Shaw & McClay, and Mark Levin, of PPG Industries Inc., Pittsburgh, Pa., for plaintiff-appellee.

Daniel W. Vittum, Jr., and Jeffrey D. Mills, of Kirkland & Ellis, Chicago, Ill., for defendant-appellant.

Judge:
Before Michel, Schall, and Bryson, circuit judges.

Opinion Text

Opinion By:
Bryson, J.

This case concerns a dispute between two major manufacturers of automotive glass; the dispute revolves around glass compositions known as "solar control glass," which have the highly desirable characteristics of filtering out most of the sun's ultraviolet and infrared radiation while transmitting most of the light in the visible part of the spectrum. Appellee PPG Industries, Inc., which holds a patent on a composition of solar control glass, sued appellant Guardian Industries Corporation for patent infringement and obtained a preliminary injunction from the United States District Court for the Western District of Pennsylvania. The injunction prohibits Guardian from making, using, or selling its own composition of solar control glass. We conclude that the district court did not abuse its discretion in granting preliminary injunctive relief to PPG, and we therefore affirm the order of the district court.

I

On August 31, 1993, the Patent and Trademark Office issued U.S. Patent No. 5,240,886 (the '886 patent), which was assigned to PPG. Shortly after obtaining the patent, PPG advised Guardian that it believed Guardian's solar control glass, known as "Solar Management Glass" (SMG), infringed PPG's rights under the patent. Litigation followed, and after a five-day hearing the

district court granted PPG's motion for a preliminary injunction.
The district court found that PPG had established a likelihood of success on the merits by making a strong showing that SMG infringed PPG's rights under the patent and that the patent was not invalid. In light of PPG's showing on the merits, the court held that PPG was entitled to a presumption that it would suffer irreparable harm from Guardian's continued infringement. The court also found that the balance of hardships and the public interest weighed in favor of granting PPG's request for preliminary injunctive relief. Guardian brought this appeal, contesting the district court's ruling on each of those points.

II

A

The issue to which the parties devote the most attention is whether Guardian infringed claim 1 of the '886 patent and dependent claims 3 and 4. Claim 1 of the '886 patent defines a glass composition consisting of soda-lime-silica glass to which is added a set of ingredients that have the effect of selectively filtering out most of the sun's ultraviolet radiation. The filtering ingredients are identified in the claim as cerium (in the form of cerium oxide (CeO2) and iron (in the ferric (Fe2O3) state). The claim requires that the composition have a total iron content of at least 0.85 percent by weight, and that the ratio of iron in the ferrous (FeO) state to total iron (known as the redox ratio) be no greater than 0.275. In full text, the claim reads as follows:
1. A green tinted, ultraviolet absorbing glass having a base glass composition consisting essentially of:

SiO_2	68-75 weight %
Na_2	10-20
CaO	5-15
MgO	0-5
Al_2O_3	0-5

K_2O	0-5

and a colorant portion consisting essentially of:

CeO_2	Less than 0.5 weight %
Total Iron (as Fe_2O_3)	Greater than 0.85 weight %
FeO/total iron	Less than 0.275.

exhibiting ultraviolet transmittance no greater than 31 percent (300 to 390 nanometers) and luminous transmittance (illuminant A) of at least 70 percent, both at a reference thickness of 3.9 millimeters. Dependent claim 3 adds the limitation that the dominant wavelength of the light transmitted by the glass must be between 495 and 535 nanometers (the green color range of the spectrum), and dependent claim 4 adds the requirement that the glass must exhibit a total solar energy transmittance (including ultraviolet, visible, and infrared radiation) of less than 45 percent at a reference thickness of 3.9 millimeters.

The ultraviolet and visible light transmission requirements set forth in the claims are those established by the automotive industry as the minimum standards for acceptable solar control glass. Prior to the '886 invention (and Guardian's SMG glass), solar control glass was often made with a significant amount of cerium, a rare earth element, in the form of cerium oxide. The principal benefit of the invention claimed in the '886 patent, as explained in the specification, is that it permits a manufacturer of solar control glass to meet industry standards while adding either no cerium or relatively little cerium to the glass. Minimizing the amount of cerium used in the glass is valuable because cerium is expensive and because it has the undesirable effect, after long-term exposure to ultraviolet radiation, of darkening the glass in which it is present.

The specification of the '886 patent contains a set of examples of compositions falling within the scope of claim 1 of the patent. The examples include several compositions containing relatively small amounts of cerium (between 0.27 and 0.31 percent cerium by weight) and one composition containing essentially no cerium. Each of the examples satisfies the transmittance requirements of the claim for visible light and ultraviolet radiation. The example that contains no cerium, however, shows a particularly low redox ratio. A low redox ratio, together with a relatively large amount of iron, has the effect of compensating for the absence of cerium in filtering out ultraviolet radiation. With respect to the no-cerium example, the specification further states that

the very low ferrous to total iron ratio required when no cerium is used may be difficult to attain in some melting furnaces. Therefore, it is preferred that a small amount of cerium be used to yield the desired reduction in ultraviolet transmittance without requiring an unduly low ferrous to total iron ratio.

While the '886 patent application was pending before the PTO, PPG obtained a sample of Guardian's SMG glass and tested it. When PPG's tests showed that the SMG sample did not meet the automobile manufacturers' standards for ultraviolet

transmittance, PPG advised Guardian of those results. Guardian responded that under its tests SMG met the 31 percent ultraviolet transmittance requirement for the 300 to 390 nanometer range. When PPG re-examined its testing procedures, it discovered that the software it was using in its testing equipment was flawed and that as a result the testing equipment had made an error in calculating not only the ultraviolet transmittance of the SMG sample, but also the ultraviolet transmittance of each of the examples set forth in the '886 patent specification. Because of the software error, the ultraviolet transmittance reported in each example was about three percent too high; thus, the glass tested in each example was actually filtering out about three percent more ultraviolet radiation than the testing equipment indicated. That error had led the inventors to suggest in the specification that a glass meeting the limitations of the patent and containing no cerium at all might be difficult to make commercially, as it would require a redox ratio that would be hard to achieve in some commercial furnaces. In fact, however, the transmittance limitations of the claims for a no-cerium glass are not as difficult to satisfy as the specification suggests, because after an adjustment is made for the three percent calculation error, the redox ratio for the no-cerium embodiment does not have to be as low as the specification indicates. Based on the three percent calculation error, Guardian argues that the claims of the '886 patent do not

cover SMG. If the claims are read in light of the specification, Guardian argues, they cannot be construed to apply to SMG, because the examples in the specification make clear that the inventors did not believe that a glass having the composition of SMG would satisfy the 31 percent ultraviolet transmission requirement.

[1] The problem with Guardian's argument is that the claims simply cannot be construed as Guardian suggests. By their plain terms, the claims read on SMG: the critical limitations require that the glass contain less than 0.5 percent cerium and more than 0.85 percent iron, that the redox ratio of the iron components be less than 0.275, that the ultraviolet transmittance be no greater than 31 percent, and that the visible light transmittance be at least 70 percent. SMG satisfies all of those limitations and thus infringes claim 1 of the '886 patent. Moreover, because the dominant wavelength transmitted by SMG is within the green range (495 to 535 nanometers) and because SMG's total solar energy transmittance at the 3.9 millimeter reference thickness is less than 45 percent, it falls within the limitations of dependent claims 3 and 4 as well.

It is true that if Guardian's SMG glass is tested with the same flawed testing equipment that was used to prepare the examples in the '886 patent specification, SMG's ultraviolet transmittance would appear to be above the 31 percent maximum set forth in the claims. But the '886 patent claims are not qualified in that manner; the claims cover glass that transmits no more than 31 percent of the sun's ultraviolet radiation, not glass that is measured at no more than 31 percent ultraviolet transmittance with PPG's flawed testing system. Because it is undisputed that SMG transmits no more than 31 percent of the sun's ultraviolet radiation over the wavelength range of 300 to 390 nanometers, and because that is the way the ultraviolet transmittance limitation is specified in the patent claims, the claims cannot be construed in a way that renders SMG non-infringing.

B

In the alternative, Guardian argues that if the claims are interpreted to read on SMG, the patent is invalid under section 112 of the Patent Act, 35 U.S.C. Section 112. Guardian makes three arguments in support of its section 112 claim. First, Guardian contends that the claims run afoul of the requirement of particularity and distinctness in paragraph 2 of section 112 because they fail to point out and distinctly claim what the inventors regarded as their invention. Second, Guardian argues that the claims violate paragraph 2 of section 112 for the additional reason that the inventors failed to state the method they used to measure the ultraviolet transmittance of the invention. Third, Guardian asserts that the patent is invalid because, in order for the claims to read on SMG, the claims must be interpreted as extending beyond the invention disclosed in the specification. In its reply brief, Guardian makes explicit that its third argument is based on the "enablement" requirement of paragraph 1 of section 112, not the "written description" requirement that appears in the same paragraph.

We reject each of the section 112 arguments on which Guardian relies. First, paragraph two of section 112 "is essentially a requirement for *precision and definiteness* of claim language," *In re Borkowski* , 422 F.2d 904, 909, 164 USPQ 642, 646 (CCPA 1970) (emphasis in original); the "requirement is that the language of the claims must make it clear what subject matter they encompass,"

In re Hammack , 427 F.2d 1378, 1382, 166 USPQ 204, 208 (CCPA 1970).

[2] There is nothing imprecise or indefinite about the claim language in the '886 patent. The claims are quite precise in quantifying the essential ingredients and transmittance tolerances of the claimed compositions: on their face, the claims give clear notice of what compositions fall within their scope. Because the claims "reasonably apprise those skilled in the art both of the utilization and scope of the invention," and because "the language is as precise as the subject matter permits," *Shatterproof Glass Corp.* v. *Libbey-Owens Ford Co.* , 758 F.2d 613, 624, 225 USPQ 634, 641 (Fed. Cir. 1985) (internal quotation omitted), *cert. dismissed* , 474 U.S. 976 (1985), the claims are not invalid for indefiniteness.

Guardian argues that the patent nonetheless violates paragraph 2 of section 112 because the inventors would not have believed at the time of their application that glass having the composition of SMG could meet the transmittance limitations of the claims. That misconception on the part of the inventors, however, does not mean that they failed to "distinctly claim [ ] the subject matter which [they] regard[ed] as [their] invention." 35 U.S.C. Section 112, Para.2. The inventors regarded their invention as a glass containing filtering ingredients within the defined composition ranges and producing an

ultraviolet transmittance of no more than 31 percent and a visible light transmittance of at least 70 percent, and that is what they claimed. Guardian relies on cases in which the claims included "a substantial measure of inoperatives," *In re Corkill* , 771 F.2d 1496, 1501, 226 USPQ 1005, 1009 (Fed. Cir. 1985), or cases in which "some material submitted by applicant, *other than his specification* , shows that a claim does not correspond in scope with what *he regards* as his invention," *In re Conley* , 490 F.2d 972,976, 180 USPQ 454, 457 (CCPA 1974) (emphasis in original; citing *In re Cormany* , 476 F.2d 998, 177 USPQ 450 (CCPA 1973), and *In re Prater* , 415 F.2d 1393, 162 USPQ 541 (CCPA 1973)). In this case, by contrast, the claims were written in a manner that required all the embodiments to be operative; the claims set out exactly what the inventors intended to claim as their invention; and Guardian does not point to any statement by the applicants outside the specification that indicates that they did not intend to claim all species having the recited limitations. Moreover, nothing in the specification renders any of the claim language ambiguous, such that a person skilled in the art would be uncertain about "what subject matter falls within the scope of the claims." *In re Miller* , 441 F.2d 689, 692, 169 USPQ 597, 599 (CCPA 1971); *see In re Moore* , 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). There is therefore no force to Guardian's argument that the claims did not accurately and distinctly set out what the inventors regarded as their invention.

Second, the patent is not rendered invalid on the ground that the inventors failed to specify the method to be used in measuring the ultraviolet transmittance set forth in the claims. The evidence at the preliminary injunction hearing established that, setting aside the equipment error that plagued PPG's testing procedures, all of the conventional methods of testing ultraviolet transmittance produce essentially identical results. Accordingly, the claim limitation of no more than 31 percent ultraviolet transmittance, in conjunction with the other limitations, is sufficiently definite to put the public on fair notice of what compositions fall within the scope of the claims. *See Hybritech, Inc.* v. *Monoclonal Antibodies, Inc.* , 802 F.2d 1367, 1385, 231 USPQ 81, 94-95 (Fed. Cir. 1986), *cert. denied* , 480 U.S. 947 (1987).

Third, the specification satisfies the enablement requirement of section 112, paragraph 1, which requires that the specification contain a description "of the manner and process of making and using [the invention], in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same." 35 U.S.C. Section 112, Para.1. The specification of the '886 patent describes in ample detail how to make and use the invention with respect to the seven specific embodiments set forth in the experimental examples. And Guardian does not dispute that the specification enables all embodiments falling within the other claim limitations and having an ultraviolet transmittance of 28 percent or less (which is the transmittance that PPG's flawed testing equipment reported as 31 percent). The only contested issue is whether the '886 patent must be held invalid on the ground that the specification fails to satisfy the enablement requirement with respect to embodiments having an actual ultraviolet transmittance of less than 31 percent, but which PPG's equipment would have reported as more than 31 percent.

In pressing its enablement argument, Guardian focuses on the portion of the specification that suggests a particularly low redox ratio is necessary to satisfy the ultraviolet transmittance limitation if the patented invention is made without any cerium. The test results and the statement on which

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Guardian relies are products of PPG's software error; the effect of the error was to make the ultraviolet transmittance figures appear artificially high and thus to make it appear that in order to attain the 31 percent ultraviolet transmittance limitation in the claims, the composition would need more iron and a lower redox ratio, both of which have the effect of reducing ultraviolet transmittance.

[3] We are not persuaded that the calculation error and the statements in the specification regarding the need for a low redox ratio in a no-cerium embodiment of the invention give rise to a violation of the enablement requirement. It is true that, in order to be enabling, a specification "must teach those skilled in the art how to make and use the full scope of the claimed invention without 'undue experimentation.' " *In re Wright* , 999 F.2d 1557, 1561, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993); *In re Vaeck* , 947 F.2d 488, 495-96, 20 USPQ2d 1438, 1444-45 (Fed. Cir. 1991). Moreover, Guardian is correct that a careful reader of the specification could well conclude that a glass with the iron content and redox ratio of SMG would not be likely to satisfy the ultraviolet transmittance limitation of the claims. The district court found, however, that PPG's calculation error was "harmless, inconsequential, and easily detectable by anyone who was skilled in the art of processing solar controlled glass." We interpret that statement

as a factual finding that PPG's error could be discovered without "undue experimentation" by a person having ordinary skill in the art, and thus that the enablement requirement of section 112 was satisfied. *See In re Vaeck* , 947 F.2d at 495, 20 USPQ2d at 1444 ("Enablement . . . is a question of law which we independently review, although based upon underlying factual findings which we review for clear error.").

In light of the district court's finding, we cannot agree with Guardian that the specification of the '886 patent does not "teach those skilled in the art how to make and use the full scope of the claimed invention." *In re Wright* , 999 F.2d at 1561; 27 USPQ2d at 1513. In unpredictable art areas, this court has refused to find broad generic claims enabled by specifications that demonstrate the enablement of only one or a few embodiments and do not demonstrate with reasonable specificity how to make and use other potential embodiments across the full scope of the claim. *See, e.g.* , *In re Goodman* , 11 F.3d 1046, 1050-52, 29 USPQ2d 2010, 2013-15 (Fed. Cir. 1993); *Amgen, Inc.* v. *Chugai Pharmaceutical Co.* , 927 F.2d 1200, 1212-14, 18 USPQ2d 1016, 1026-28 (Fed. Cir.), *cert. denied* , 502 U.S. 856 (1991); *In re Vaeck* , 947 F.2d at 496, 20 USPQ2d at 1445. Enablement is lacking in those cases, the court has explained, because the undescribed embodiments cannot be made, based on the disclosure in the specification, without undue experimentation. But the question of undue experimentation is a matter of degree. The fact that some experimentation is necessary does not preclude enablement; what is required is that the amount of experimentation "must not be unduly extensive." *Atlas Powder Co.* v. *E.I. DuPont De Nemours & Co.* , 750 F.2d 1569, 1576, 224 USPQ 409, 413 (Fed. Cir. 1984). The Patent and Trademark Office Board of Appeals summarized the point well when it stated:

The test is not merely quantitative, since a considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed to enable the determination of how to practice a desired embodiment of the invention claimed.

Ex parte Jackson , 217 USPQ 804, 807 (1982).

In this case, the district court was justified in finding that undue experimentation would not be required to make an embodiment of the '886 patent having the same composition and transmittance properties as SMG. One of the examples in the specification describes a glass containing no cerium, but having a lower redox ratio and a higher iron content than SMG. The specification teaches that as the iron content of the glass is reduced and the redox ratio rises, the glass transmits more ultraviolet radiation. A person reading the specification could therefore start with the no-cerium example and make a glass similar to SMG by simply lowering the iron content and allowing the redox ratio to rise until the ultraviolet transmittance reached the 31 percent limitation.

Another example given in the specification has roughly the same composition as SMG except that it contains a small amount of cerium. Following the principles taught in the specification, an experimenter could produce an embodiment of the '886 patent with a composition and properties similar to SMG simply by keeping the iron content and the redox ratio fixed, and reducing the cerium content to zero. In preparing that embodiment, the experimenter would discover that the ultraviolet transmittance calculations for the examples found in the patent specification are a few percent too high, but that error would not affect the experimenter's ability to make the desired embodiment.

Where the specification provides "guidance in selecting the operating parameters that would yield the claimed result," *In re Colianni* , 561 F.2d 220, 224, 195 USPQ 150, 153 (CCPA 1977) (Miller, J., concurring) (emphasis omitted), it is fair to conclude that the experimentation required to make a particular embodiment is not "undue." Although PPG's software error made it appear that commercial production of a no-cerium composition that satisfied the transmittance limitations would be difficult, the specification made it clear that such a composition could be made, and it indicated to one skilled in the art how to maintain low ultraviolet transmittance while minimizing the cerium content of the glass. Thus, the specification gave "considerable direction and guidance on how to practice [the] invention." *In re Wands* , 858 F.2d 731, 740, 8 USPQ2d 1400, 1406 (Fed. Cir. 1988).

In light of the guidance provided by the specification, this case is quite different from those in which enablement has been found lacking because of the need for "undue experimentation." *See* , *e.g.* , *White Consol. Indus., Inc.* v. *Vega Servo-Control, Inc.* , 713 F.2d 788, 790-92, 218 USPQ 961,

962-64 (Fed. Cir. 1983) (a requirement of 18 months to two years' work to practice the patented invention is "undue experimentation"); *In re Ghiron* , 442 F.2d 985, 992, 169 USPQ 723, 727-28 (CCPA 1971) (a development period of " 'many months or years . . . does not bespeak a routine operation but of extensive experimentation and development work' "). It was therefore reasonable for the district court to conclude that the patent was not invalid for lack of enablement.

C

Guardian next contends that it does not infringe PPG's rights under the '886 patent, because SMG contains a sulfur compound that significantly affects its filtering properties, and the claims of the '886 patent therefore do not read on SMG glass. The district court acknowledged that SMG contains sulfur, but it found that the sulfur contained in SMG has no material effect on the filtering properties of the glass.

Guardian contends that the district court committed clear error in the factual finding it made on the sulfur issue. The court's finding, however, was based on an extensive exploration of the issue through testimony and documents at the five-day preliminary injunction hearing. Although Guardian introduced documentary evidence that sulfur can affect the transmittance properties of glass, Guardian did not persuade the district court -- and has not persuaded us -- that those authorities prove that sulfur has such an effect when the redox ratio is as low as it is in Guardian's accused SMG product.

Guardian challenges the testimony of PPG's expert on the sulfur issue, but the court heard testimony by experts from both sides and found PPG's expert testimony more convincing. Because we do not find PPG's presentation on the sulfur issue inherently implausible, we are satisfied that the district court's finding on that issue is not clearly erroneous.

D

Guardian's next argument is that PPG failed to satisfy its burden of showing that the '886 patent is likely to survive challenges based on Guardian's defenses of anticipation and obviousness. Before the district court, Guardian argued that example 4 in Russian Patent No. 948,912 anticipated, or at least rendered obvious, claim 1 of the '886 patent. Guardian urges that in rejecting its contention, the district court applied an erroneous legal standard and did not make sufficiently detailed factual findings to permit meaningful review by this court.

The district court concluded that there was no factual basis to support a finding of invalidity, because the Russian patent teaches that significant amounts of cerium and other rare earth elements that absorb ultraviolet light are necessary to reduce ultraviolet transmission to the level set forth in claim 1 of the '886 patent. To be sure, the district court did not articulate the correct legal standard when it stated that to invalidate a patent the prior reference must "give the same knowledge and the same directions" as the challenged patent. The ultimate question, however, is whether the challenger's evidence of invalidity is sufficiently persuasive that it is likely to overcome the presumption of patent validity. *See New England Braiding Co.* v. *A.W. Chesterton Co.* , 970 F.2d 878, 883, 23 USPQ2d 1622, 1625 (Fed. Cir. 1992). In view of the limited record presented to the district court on this issue, we agree with the court's conclusion that Guardian's argument based on the Russian patent failed to "raise [ ] a substantial question" of invalidity. *Id* .

[4] To anticipate a claim, a reference must disclose every element of the challenged claim and enable one skilled in the art to make the anticipating subject matter. *Chester* v. *Miller* , 906 F.2d 1574, 1576 n.2, 15

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USPQ2d 1333, 1336 n.2 (Fed. Cir. 1990); *In re Donohue* , 766 F.2d 531, 533, 226 USPQ 619, 621 (Fed. Cir. 1985). Guardian has not shown that the composition described in example 4 of the Russian patent meets the limitations of the claim, because that composition contains significant amounts of several rare earth elements that absorb ultraviolet radiation as well as visible light.

In presenting its defense of obviousness, Guardian again relied principally on the Russian patent. In the district court, however, Guardian did not demonstrate that the claimed invention would have been obvious to one skilled in the art in light of the disclosures in that reference. In its presentation to us, moreover, Guardian has not pointed to any evidence showing that the district court's factual finding that the Russian patent teaches away is clearly erroneous. Therefore, Guardian has failed to provide any basis for concluding that one skilled in the art would have been motivated to eliminate the additional rare earth elements recited in example 4 of the Russian patent and would have had a reasonable

expectation of success in light of the prior art. *See In re Dow Chemical Co.* , 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). For purposes of the preliminary injunction proceedings, PPG has thus satisfied its burden of showing a likelihood of success on the validity issue.

E

Guardian also challenges the district court's conclusion that PPG would suffer irreparable harm if preliminary injunctive relief were not granted. Because the district court found that PPG had made a clear showing that it was likely to prevail on the issues of patent validity and infringement, the court held that PPG was entitled to a presumption of irreparable harm. *See H.H. Robertson Co.* v. *United Steel Deck, Inc.* , 820 F.2d 384, 390, 2 USPQ2d 1926, 1930 (Fed. Cir. 1987); *Atlas Powder Co.* v. *Ireco Chemicals* , 773 F.2d 1230, 1233, 227 USPQ 289, 292 (Fed. Cir. 1985). In addition, the district court found that in the absence of injunctive relief PPG's significant position in the solar control glass market would be threatened.

[5] Guardian places heavy reliance on this court's decision in *High Tech Medical Instrumentation, Inc.* v. *New Image Indus., Inc.* , 49 F.3d 1551, 33 USPQ2d 2005 (Fed. Cir. 1995), where the court reversed a preliminary injunction in part because of an inadequate showing of irreparable harm. In that case, however, the court concluded that the patentee was unlikely to succeed on the merits of its infringement claim and therefore held that the presumption of irreparable harm was inapplicable. 49 F.3d at 1556, 33 USPQ2d at 2009. In this case, by contrast, we have upheld the district court's conclusion that PPG is likely to succeed at the merits stage on the issues of infringement and validity, and we agree that PPG's showing on those issues was sufficiently strong to invoke the presumption of irreparable harm. Because we agree with the district court that Guardian failed to rebut that presumption, we sustain the court's ruling that PPG met its burden of showing that it would suffer irreparable harm in the absence of an order granting preliminary injunctive relief.

F

Finally, Guardian argues that the balance of hardships and the public interest both counsel in favor of denying the injunction. The district court, however, considered both factors and reached the contrary conclusion, and we are not prepared to overturn that determination. The district court concluded that PPG would suffer significant harm from the denial of an injunction, while an injunction would be less burdensome for Guardian, as it would require only a temporary interruption in Guardian's production and sale of its SMG glass. With regard to the public interest, the court acknowledged that an injunction would deprive the public of one of the suppliers of solar control glass. The court, however, balanced that interest against the strong public policy favoring the enforcement of patent rights. Because the court found it unlikely that the injunction would result in a shortage of solar control glass, the court found that, on balance, the public interest favored PPG.

[6] Guardian argues that PPG will be unable to satisfy the requirements of Guardian's customers, particularly the large automobile manufacturers, for solar control glass. To address that objection, however, the district court gave Guardian the right to return to court for relief from the preliminary injunction if Guardian were unable to fulfill its current contracts with automobile manufacturers, either with noninfringing compositions or by purchase from PPG on reasonable terms. Guardian made an initial request for temporary relief from the injunction, which was granted. The record does not reflect that Guardian has made any further requests, although the district court has made clear that it would be prepared to entertain any such requests if they should be

made. In the absence of a showing that the district court has been unresponsive to Guardian's interest in fulfilling its current contract obligations, or to the public's interest in obtaining an adequate supply of solar control glass, we cannot conclude that the district court abused its discretion in finding that both the balance of hardships and the public interest favor PPG.

III

The unusual circumstances surrounding the prosecution of the '886 patent have made this preliminary injunction proceeding difficult. Nonetheless, we have carefully reviewed each of the numerous legal points that Guardian has raised in challenging the injunction, and we conclude that none of them requires that we upset the district court's order. Guardian will have an opportunity at the merits stage to present and expand upon the arguments it has made at the preliminary injunction stage, as well as any

additional arguments that it chooses to present, and the district court will be able to give those arguments plenary consideration at that time. The record as it now stands, however, compels us to conclude that the district court did not abuse its discretion in granting the preliminary injunction. *AFFIRMED* .

- End of Case -

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